CALIBRATION TECHNOLOGIES INC.

SPECIALISTS IN GAS DETECTION

Gas Detection Products

Ammonia & other gases

Product Brochures

2014

CALIBRATION TECHNOLOGIES INC.

Specialists in Gas Detection

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GASGUARDIAN-6 MULTI-CHANNEL CONTROLLER

Key Features

- Simultaneously monitor 6 sensors – up to 30 with expansion modules
- Six onboard relays standard – eight more relays per expansion module
- Alarm Log records and stores every event
- Industry standard linear 4/20 mA input can accommodate any gas sensor
- Simple menu-driven programming through the LCD operator interface
- Power supply can also drive external horn/strobes
- Watertight enclosure designed for washdown areas and outdoors
- Configurable for GasGuard sensor line and any other 4/20 mA gas sensor
- Horn relay silenceable from front-panel Silence key

The perfect full-feature controller for medium to large gas detection systems provides a Stand-Alone Safety System for up to 30 sensors.

The GG-6 can interface to, but operate independently of, plant control systems for a reliable stand-alone safety system. The GG-6 comes standard with six onboard relays, as well as an onboard buzzer. One relay is a dedicated fault relay, the other five relays are user programmable to trigger upon any event for any sensor or group of sensors.

The GG-XM expansion modules allow you to add on eight sensors for each module, up to three modules for a total of 30 sensors. Each GG-XM comes equipped with eight 4/20 mA inputs, eight programmable relays and its own power supply. Analog output boards can be added on to the controller and expansion modules, which can be connected to your plant PLC or other 4/20 mA control panel.

The watertight fiberglass enclosure will stand up to corrosive washdown, temperature swings and any other harsh environment often encountered in the food industry. The GG-XM's connect to the GG-6 and /or each other via a 24" wire harness. Since the alarm log holds 10,000 events, yesterday's events will not go unnoticed.

Applications

- Engine Rooms
- Tank Rooms
- Mechanical Rooms
- Sea Vessels
- Refrigeration Systems
- Perimeter Monitoring
- Heat Treatment
- Refineries
- Chemical Plants

Benefits

- Full-featured
- Expandable
- Easy configuration

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GASGUARDIAN-6

The GG-6 controller utilizes a user-friendly LCD operator interface for all readout information and alarm function control. Out of the box, the controller and expansion modules are configured and ready to go with default setpoints loaded in the software. Just enter the zone location names and adjust the low the high alarm setpoints if needed.

The backlit LCD displays real-time status of gas sensor concentrations and allows for custom programming thru a user-friendly menu system. The GG-6 and expansion modules are compatible with all gas sensors with industry standard 4/20 mA inputs. The power supplies are powerful enough to power all connected sensors and external 24Vdc horn/strobes.

All wiring is safely enclosed inside and easily accessed from the hinged lids. All expansion modules connect to the GG-6 in a daisy-chain configuration. Wiring is as easy as plugging in a wiring harness. All human interfacing is performed via the waterproof membrane keys on the outside of the GG-6, for non-intrusive operation.

Ordering Information

The **GasGuardian-6** is delivered to you ready to go. Use either the default setpoints or choose your own. Use the model number below to order.

Order #: **GG-6** (does not include sensors) Six channel controller includes LCD operator interface, power supply and 6 relay outputs.

GG-XM (does not include sensors) Eight channel expansion module includes power supply and 8 relay outputs. (the GG-6 can accommodate up to three GG-XM's)

Options:

GG-6-AOB Six channel analog output board
GG-XM-AOB Eight channel analog output board
GG-6-APS Auxiliary 24VDC power supply, 4.5A
GG-6 Startup Contact us for details

6 channels, 14 channels, 22 channels or 30 channels.
Get what you need now…expand later.

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

AC POWER REQUIREMENTS:
110 VAC @ 2 A

DC POWER AVAILABLE FOR SENSORS
+24 VDC @ 3.7 A (GG-6/GG-XM)

DIMENSIONS:
15.8" high x 14" wide x 7" deep (GG-6/GG-XM)

WEIGHT:
12 lbs (GG-6/GG-XM)

ENCLOSURE:
Fiberglass Reinforced Polyester NEMA 4X, with neoprene gasket. Continuous stainless steel hinge. Captive screws in lid. For non-classified areas.

TEMPERATURE RANGE:
0°F to +122°F

HUMIDITY RANGE:
0-100% RH, condensing, with proper conduit seals

RELAY OUTPUTS:
SPDT relays, 10A @ 24 VDC or 120 VAC
10 Second On/Off delays
Selectable to Latch/Non-Latch
Status LEDs show relay state

GG-6 (Six Relays)

(6) Programmable Relays
Programmable to trigger upon any event for any sensor or group of sensors.

GG-XM (Eight Relays)

(8) Programmable Relays
Programmable to trigger upon any event for any sensor or group of sensors.

ANALOG OUTPUTS: (optional)
(6) **Individual** 4/20 mA outputs (GG-6)
(8) **Individual** 4/20 mA outputs (GG-XM)

HORN:
PCB mount Piezo buzzer (GG-6 only)

CONTROLLER FUNCTIONS:
LCD, backlit, graphics display (GG-6 only)
8 lines x 22 characters
Waterproof membrane switches, alpha-numeric keys
Non-volatile memory

Real-Time Status Display: Displays gas concentrations and any current alarm conditions.

Alarm Log: Records and stores 10,000 events for easy recall

Calibration Mode: Locks relay outputs for sensor calibration or maintenance.

Relay Test Function: Allows for easy testing of relay output functions

Adjustable Warning and Alarm Setpoints

Adjustable Relay Latch/Non-Latch

Downscale Alarm Setting for Oxygen Monitoring

Horn Silence Button Clears Horn Relay

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GASGUARDIAN-2 2-CHANNEL CONTROLLER

Key Features

- Simultaneously monitor two sensor locations
- Six onboard relays standard
- Alarm Log records and stores every event
- Industry standard linear 4/20 mA input can accommodate any gas sensor
- Simple menu-driven programming through the LCD operator interface
- Power supply can also drive external horn/strobes
- Watertight enclosure designed for washdown areas and outdoors
- Configurable for GasGuard sensor line and any other 4/20 mA gas sensor
- Horn relay silenceable from front-panel Silence key

The perfect controller for small gas detection systems provides a Stand-Alone Safety System for any 2-sensor application.

The GasGuardian-2 can interface to, but operate independently of, plant control systems for a reliable stand-alone safety system. Multiple digital and analog outputs provided on the GasGuardian-2 means no extra output boards need to be added later for unforeseen interfacing in the future.

The GasGuardian-2 has a total of 6 relay outputs, including one warning and one alarm relay per channel, one common fault relay, and one common horn relay. An onboard buzzer that works in tandem with the common horn relay. Analog outputs are standard, which can be sent to your plant PLC or other 4/20 mA control panel.

The watertight fiberglass enclosure will stand up to corrosive washdown, temperature swings and any other harsh environment often encountered in the food industry. Since the alarm log holds 10,000 events, yesterday's events will not go unnoticed.

Applications

- Engine Rooms
- Tank Rooms
- Mechanical Rooms
- Sea Vessels
- Refrigeration Systems
- Perimeter Monitoring
- Heat Treatment
- Refineries
- Chemical Plants

Benefits

- Low cost solution for small systems
- Easy, simple configuration
- Alarm log records all events

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GASGUARDIAN-2

The GasGuardian-2 controller utilizes a user-friendly LCD operator interface for all readout information and alarm function control. Out of the box, the controller is configured and ready to go with default setpoints loaded in the software. Just enter the zone location names and adjust the low the high alarm setpoints if needed.

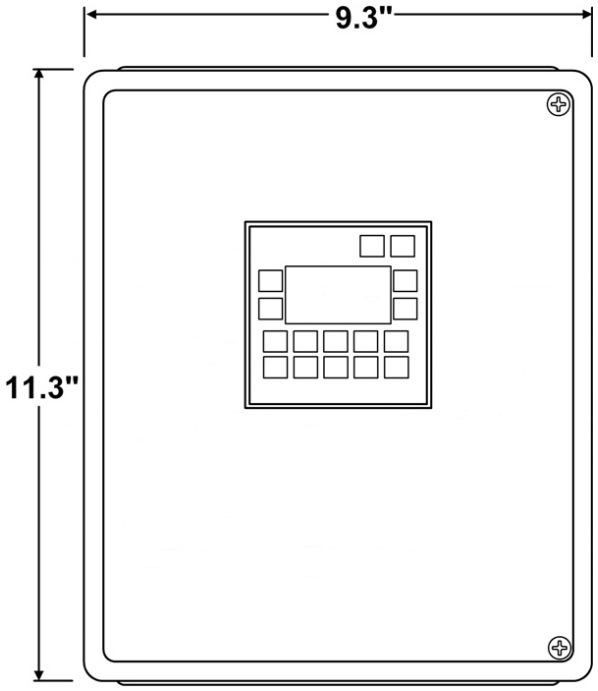
The backlit LCD displays real-time status of gas sensor concentrations and allows for custom programming thru a user-friendly menu system. The GasGuardian-2 is compatible with all gas sensors with it's industry standard 4/20 mA inputs. The power supply is also powerful enough to power external 24Vdc horn/strobes.

All wiring is safely enclosed inside and easily accessed from the hinged lid. All human interfacing is performed via the waterproof membrane keys on the outside, for non-intrusive operation.

Ordering Information

The **GasGuardian-2** is delivered ready to install. Use either the default setpoints or choose your own. Use the model number below to order.

Order #: **GG-2** (does not include sensors)



SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

AC POWER REQUIREMENTS:
110 VAC @ 1 A

DC POWER AVAILABLE FOR SENSORS
+24 VDC @ 1.1 A

DIMENSIONS:
11.3" high x 9.3" wide x 7" deep

WEIGHT:
6 lbs

ENCLOSURE:
Fiberglass Reinforced Polyester NEMA 4X, with polyurethane gasket. Continuous stainless steel hinge. Captive screws in lid. For non-classified areas.

TEMPERATURE RANGE:
0°F to +122°F

HUMIDITY RANGE:
0-100% RH, condensing, with proper conduit seals

RELAY OUTPUTS: (6)
SPDT relays, 10A @ 24 VDC or 120 VAC
10 Second On/Off delays
Selectable to Latch/Non-Latch
Status LEDs show relay state

(1) Common Horn Relay
Selectable to trigger upon warn or alarm, or both

(1) Common Fault Relay
Normally energized
De-activated upon power loss or 1 mA signal

(2) Individual Warn Relays
Programmable setpoints

(2) Individual Alarm Relay s
Programmable setpoints

ANALOG OUTPUTS:
(2) **Individual** 4/20 mA outputs

HORN:
PCB mount Piezo buzzer

CONTROLLER FUNCTIONS:
LCD, backlit, graphics display
8 lines x 22 characters
Waterproof membrane switches, alpha-numeric keys
Non-volatile memory

Real-Time Status Display: Displays gas concentrations and any current alarm conditions.

Alarm Log: Records and stores 10,000 events for easy recall

Calibration Mode: Locks relay outputs for sensor calibration or maintenance.

Relay Test Function: Allows for easy testing of relay output functions

Adjustable Warning and Alarm Setpoints

Adjustable Relay Latch/Non-Latch

Downscale Alarm Setting for Oxygen Monitoring

Horn Silence Button Clears Horn Relay

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GASGUARDIAN-EM ENTRANCE MONITOR

Key Features

- At-a-glance visual indication of gas concentrations before room entry
- For stand-alone or feed-through applications
- Onboard 10A relay with adjustable alarm setpoint
- 10-segment LED bargraph display of gas concentration
- Electronics completely potted to protect against water damage and corrosion
- Status LEDs display sensor power, alarm or fault conditions
- Industry standard linear 4/20 mA input can accommodate any gas sensor
- Calibration mode allows alarm inhibiting during maintenance or calibration
- Watertight NEMA 4X enclosure designed for washdown areas and outdoors
- Use with GasGuard sensor line or any other 4/20 mA gas sensor

What's lurking behind your doors?

Protect your personnel from entering dangerous areas.

The Gas-Guardian EM provides plant personnel an at-a-glance visual indication before entering potentially dangerous areas. It has a ten-segment LED bargragh display, power, alarm and fault indication, and one relay output with a simple alarm setpoint adjustment. Great for engine rooms and air handlers.

The GasGuardian EM can be used as a stand-alone monitor, or in series with the sensor signal to provide remote display / remote relay operation. As a feed-through device, the sensor signal is re-transmitted back to any industry standard 4/20 mA device such as a PLC or gas detection control panel.

The watertight polycarbonate enclosure will stand up to corrosive washdown, temperature swings and any other harsh environment often encountered in the food industry. The electronics are completely potted to protect against corrosion, allowing for installation in washdown areas and outdoors.

Applications

Compressor Room Entrances
Rooftop Air Handling Units
Oxygen Deficiency Monitoring
Remote Relay Activation and Readout

Benefits

Low cost solution for remote gas concentration display, or remote relay output control for alarm activation or equipment shutoff.

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GASGUARDIAN-EM

The GasGuardian EM is a low cost solution that provides multiple configurations to meet many needs for remote display and alarm applications. Use the GasGuardian EM as a stand-alone device, or as a feed-through device to provide remote display and alarm output capability located at or near the sensor.

Since sensors often end up in wet harsh environments, an onboard relay is not always ideal. The GasGuardian EM provides alarm activation remote of the sensor, in a safe enclosure out of harm's way. The onboard relay is rated at 10A@24VDC or 120VAC.

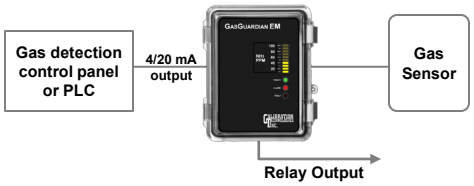
The GasGuardian EM provides an at-a-glance indication of dangerous gas concentrations with a 10-segment LED. An alarm indication is displayed by a flashing status LED. A 10-position rotary switch allows for easy setpoint selection in 10% increments. Calibration mode is selected via an onboard switch, and prevents relay activation during maintenance or calibration. The analog output signal is also held at 4 mA to prevent alarm conditions at the control panel or PLC.

Ordering Information

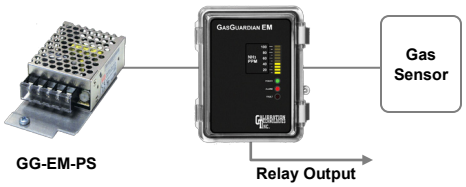
The **GasGuardian EM** is delivered ready to install. Use the model number below to order. The **GG-EM-PS** option allows the unit to be hardwired for 120VAC power.

Order #: **GG-EM** (does not include sensor or power supply)
GG-EM-PS 24VDC, 0.625A power supply mounts inside of GG-EM (for stand-alone or OEM installations)

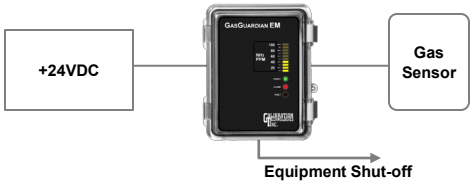
Feed-Through Installation



Stand-Alone Installation



OEM Installation



SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

POWER REQUIREMENTS:
24VDC, 120mA (does not include other connected devices)

SIGNAL INPUT:
4/20 mA, 100 Ohm input impedance

DISPLAY:
10-Segment LED Bargragh

ALARM INDICATION:
Flashing red LED

FAULT INDICATION:
Solid red LED

POWER INDICATION:
Solid green LED

ALARM LEVEL SETTING:
10% increments by 10-position rotary switch

RELAY OUTPUT:
SPDT relay, 10A @ 24 VDC or 120 VAC
10 Second On/Off delays
Non-Latching
Status LED shows relay state
Normally energized
An alarm condition, fault condition or loss of power will de-energize the relay

DIMENSIONS:
5.1" high x 4.2" wide x 4" deep

WEIGHT:
1.0 lbs

ENCLOSURE:
Polycarbonate NEMA 4X, with neoprene gasket. Hinged lid with dual clasps. For non-classified areas.

MONITOR FUNCTIONS:
Calibration Mode: Locks relay outputs for sensor calibration or maintenance.
Relay Test Function: Allows for easy testing of relay output functions
Adjustable Alarm Setpoint
Downscale Alarm Setting for Oxygen Monitoring

TEMPERATURE RANGE:
-40°F to +122°F

HUMIDITY RANGE:
0-100% RH, condensing

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GasGuard NH_3 Ammonia Sensor

Key Features

- Electronics completely potted to eliminate corrosion in harsh, wet environments
- Ammonia specific electrochemical sensor technology. Absolutely no false alarms
- No more special-order guesswork or added costs for heated or stainless enclosures
- Industry standard linear 4/20 mA output
- Corrosion, weather and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Sensor designed to adapt to any harsh environment from -50°F to +140°F
- Accurately monitor OSHA's PEL, STEL and IDLH setpoints for personnel protection
- Real-time continuous monitoring for early leak detection.
- Just select the range: 0-100 ppm (standard), 0-250 ppm, 0-500 ppm or 0-1000 ppm
- Any sensor can be field calibrated to any range listed

Finally, one sensor designed to perform in all environments. The intelligently adaptive GasGuard NH_3 goes anywhere.

The GasGuard NH3 utilizes proven electrochemical sensor technology for fast and accurate leak detection. The standard detection range of the GasGuard NH3 provides real-time continuous monitoring of ammonia concentrations accurately down to 5 ppm, with no false alarms.

Every GasGuard NH3 sensor comes equipped with an intelligent internal temperature control designed to perform in the harshest of areas. The controlled environment provides optimum moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard NH3 provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations such as washdowns, defrost cycles, etc.

Applications

- Food Processing areas
- Cold Storage
- Compressor Rooms
- Tank Rooms
- Ventilation Ducts
- Sea Vessels
- Refrigeration Systems
- Perimeter Monitoring
- Pulp and Paper
- Heat Treatment
- Breweries
- Refineries
- Chemical Plants

Benefits

- Versatile for any application
- Easy to order
- Low cost
- Simple operation
- Rugged and reliable

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GasGuard NH_3

One sensor for any environment = low cost & easy ordering

The standard **GasGuard NH3** sensor is designed to work anywhere, and at a lower base-model price than most of our competition. With only one electrochemical sensor for any application, designing, ordering and maintaining your ammonia detection system is less hassle. We typically recommend a 0/100 ppm range for all personnel and product protection areas. Higher ranges (0/250, 0/500, 0/1000) are an option to suit your higher alarm setpoint areas such as Engine Rooms.

Designed "Food Industry" tough

From -50°F blast cells, to +140°F engine rooms, to chemical washdowns of processing areas, the **GasGuard NH3** is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and even direct hose-hits from clean-up crews. Stainless steel enclosures are available for applications which require them.

Ordering Information

The **GasGuard NH3** is delivered calibrated and ready to install. Use the model numbers below to specify your factory calibrated range. Keep in mind, every sensor can be field calibrated to any range listed below.

GG-NH3-100 (*standard*)
GG-NH3-250
GG-NH3-500
GG-NH3-1000
GG-NH3-RC (*replacement cell*)
GG-NH3-xxx-ST (stainless steel enclosure – add ST to end of order #)

NEW

Stainless Steel enclosure option

Mounting flanges for easy installation
Reinforced hinged lid with stainless steel pin
Circuit board and components completely potted to protect against corrosion
Splash guard re-directs water from washdown and hose-hits towards the bottom of enclosure
Single-screw door latch for fast and easy access
GasGuard NH3
RANGE
0-100 ppm
0-250 ppm
0-500 ppm
0-1000 ppm
SPAN
ZERO
Test +
40 to 200 mVDC
Test -

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
Electrochemical

DETECTION METHOD:
Diffusion

GASES:
Ammonia (NH3)
Other gases available. Call for more information

RANGES:
0/100 ppm (standard)
0/250 ppm
0/500 ppm
0/1000 ppm
Custom ranges available. Call for more information

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 350 mA

RESPONSE TIME:
T_{50} = less than 20 seconds
T_{90} = less than 60 seconds

ACCURACY:
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

ZERO DRIFT:
Less than 0.1% of full-scale per month, non-cumulative

SPAN DRIFT:
Application dependant, but generally less than 3% per month

LINEARITY:
+/- 1% of full-scale

REPEATABILITY:
+/- 1% of full-scale

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft.

ENCLOSURE:
Injection-molded NEMA 4X polycarbonate with hinged lid and captive screw. For non-classified areas.

TEMPERATURE RANGE:
-50°F to +140°F (-46°C to +60°C)

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
7.5" high x 6.5" wide x 3.75" deep

WEIGHT:
3 lbs

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GasGuard NH_3-2% High-Range Ammonia Sensor

Key Features

- Ammonia selective catalytic bead sensor technology
- Useful for activation of electrical shunt-trip up to 20,000 ppm
- Low cost compared to pricey infrared type ammonia sensors
- Industry standard linear 4/20 mA output
- Absolutely no Zero drift compared to other catalytic bead type sensors
- Sensing element designed for long life in harsh industrial environments
- Designed to perform in temperatures of -40°F to +150°F
- Accurately monitor explosive NH3 levels for emergency response situations
- Real-time continuous monitoring
- Use with GasGuard NH3 low-ppm sensor for complete compressor room protection

Ammonia compressor room explosion prevention. High-range sensor at a low-range price.

The GasGuard NH3-2% is designed to detect and monitor potentially explosive levels of ammonia vapors in the event of a catastrophic failure. Codes specify an electrical shunt-trip of the mechanical room at a level not higher than 25% LEL to remove potential ignition sources in the event of a serious ammonia leak. The GasGuard NH3-2% allows for an earlier trip level of 12.5%LEL.

The GasGuard NH3-2% utilizes an ammonia selective catalytic bead sensor technology with a matched pair of detector elements. When ammonia vapors enter the sensor, the passive bead remains un-changed while the active detector bead catalyzes the oxidation of gas, generating heat and changing its resistance. The resulting change in resistance is accurately measured across the bridge circuit.

The GasGuard NH3-2% provides an industry standard linear 4/20 mA output signal proportional to 0-2% (0-20,000 ppm) of ammonia. The totally potted transmitter is compatible with most gas detection systems and PLCs. Long sensor life with minimal span adjustment can be expected in most mechanical room applications. The sensor is designed for simple calibration and is field replaceable.

Applications

- Compressor Rooms
- Electrical shutdown
- Heat Treatment
- Tank Rooms
- Sea Vessels
- Refrigeration Systems
- Cold Storage
- Pulp and Paper
- Chemical Plants
- Breweries
- Refineries

Benefits

- Low cost explosion protection
- Long sensor life (5+ yrs typical)
- Simple operation & calibration

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GasGuard NH_3-2%

Since low-ppm sensors can't detect high enough and high-ppm sensors can't detect accurately at low levels, the use of the **GasGuard NH3-2%** sensor in conjunction with low-ppm GasGuard NH3 sensors ensures a second-stage line of defense in the event of a serious ammonia leak. Intended for electrical shutdown, the **GasGuard NH3-2%** provides protection against potentially explosive situations.

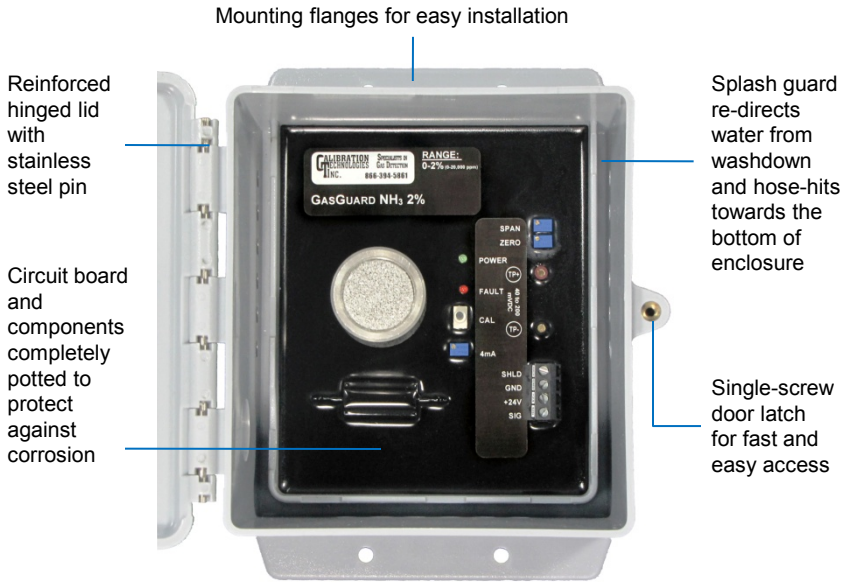
From hot mechanical rooms, to acid washdowns of processing areas, the **GasGuard NH3-2%** is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting sensitive electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and direct hose-hits from clean-up crews.

Typical sensor life is 5-7 years, with minimal to no cross-sensitivity to most other gases. Field replaceable sensor element keeps long term maintenance simple and low cost.

Ordering Information

The **GasGuard NH3-2%** is delivered calibrated and ready to install. The assembly includes sensor and potted transmitter mounted inside the hinged polycarbonate enclosure. Use the model numbers below to order.

GG-NH3-2%
GG-NH3-2%-RS (*replacement sensor*)



SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
Catalytic Bead

DETECTION METHOD:
Diffusion

GASES:
Ammonia (NH3)

RANGES:
0-2% (20,000 ppm)

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 250 mA

SENSITIVITY:
200 ppm with 1,000 ppm zero deadband

RESPONSE TIME:
T_{50} = less than 30 seconds
T_{90} = less than 90 seconds

ACCURACY:
+/- 5% of value, but dependant on calibration gas accuracy

ZERO DRIFT:
Less than 0.01% of full-scale per month

SPAN DRIFT:
Application dependant, but generally less than 2% per month

REPEATABILITY:
+/- 1% of full-scale

LINEARITY:
+/- 0.5% of full-scale

TEMPERATURE RANGE:
-40°F to +150°F (-40°C to +66°C)

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (Belden 8772 or equivalent) up to 1500 ft.

ENCLOSURE:
Injection-molded NEMA 4X polycarbonate Hinged lid. For non-classified areas.

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
7.5" high x 6.5" wide x 3.75" deep

WEIGHT:
3 lbs

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GASGUARD VENT LINE AMMONIA SENSOR

Key Features

- Continuous monitoring of refrigeration system relief valves
- Industry standard linear 4/20 mA output
- Durability and long life of a solid-state sensor
- Corrosion, weather and chemical resistant transmitter enclosure
- Sensor designed for harsh environments from -46°F to +140°F
- Sensor and preamp in one assembly - only one cable required
- 0-1% (0-10,000ppm) allows for wide range of alarm setpoints
- Ability to detect "weeping valves" to prevent refrigerant loss over time
- Innovative sensor housing allows for simple & low cost sensor replacement

From unlikely high-pressure releases to the inevitable "weepers", the GasGuard Vent Line sensor will notify you … before your neighbors do.

The GasGuard Vent Line utilizes a rugged solid-state sensor technology for fast leak detection and long life. The standard detection range of the GasGuard Vent Line provides real-time continuous monitoring of ammonia concentrations in your high-pressure relief vent header.

High concentrations of ammonia gases in your vent line are usually indications of a leaking valve or system overpressure. Either could mean costly repairs or plant downtime, not to mention loss of refrigerant. Early detection can save money and protect equipment and personnel.

The GasGuard Vent Line sensor provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. Expect long sensor life and virtually zero signal drift over time. Minimum maintenance requirements include only a response check twice per year.

Applications

- Ammonia Refrigeration System Vent Lines (outdoor installations only)

Benefits

- Low cost
- Rugged and reliable
- Simple sensor replacement
- Typical sensor life 5 to 7 years

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GasGuard Vent Line

The **GasGuard Vent Line** sensor is designed for outdoor mounting. We recommend that the sensor be mounted 3' to 5' above the roofline on the relief discharge to atmosphere. The 1/2" pipe nipple of the supplied mounting kit should be welded to the relief discharge. The innovative mounting kit with union allows for easy and low cost sensor replacement.

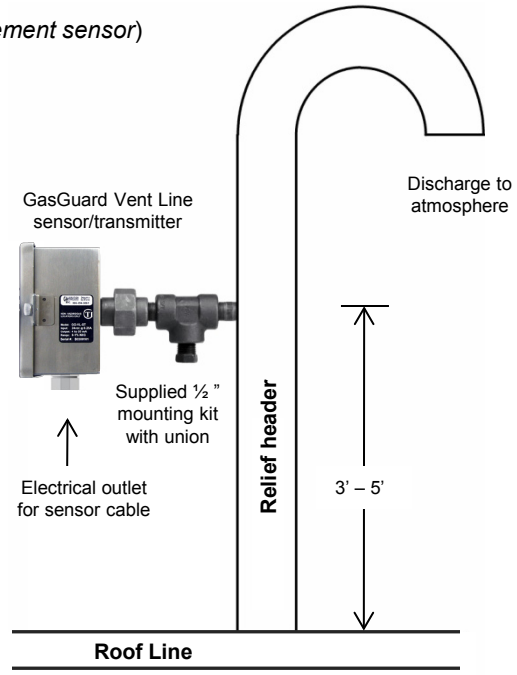
Reliable & robust

The stainless steel enclosure provides the ultimate protection against any type of weather and will stay corrosion free. Every transmitter circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. Since the solid-state sensor is designed to endure the coldest of winters and hottest of summers, the output signal is not affected by extreme temperature variations. The life of the sensor is not affected by exposure to ammonia gases.

Ordering Information

The **GasGuard Vent Line** sensor kit is delivered calibrated and ready to install. The kit includes the transmitter/sensor assembly and mounting kit. Use the model numbers below to order.

GG-VL-NH3
GG-VL-RS (*replacement sensor*)



SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
Solid-state

DETECTION METHOD:
Diffusion

GASES:
Ammonia (NH3)
Other gases also available

RANGES:
0/1% (10,000 ppm)

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 250 mA

ACCURACY:
+/- 5% of value

ZERO DRIFT:
Less than 1% per month, non-cumulative

SPAN DRIFT:
Less than 1% of full-scale per month, non-cumulative

LINEARITY:
+/- 5% of full-scale

REPEATABILITY:
+/- 5% of full-scale

RESPONSE TIME:
T_{90} = less than 30 seconds

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft.

ENCLOSURE:
INEMA 4X stainless steel gasketed housing. Captive screw in hinged lid. For non-classified areas.

TEMPERATURE RANGE:
-46°F to +140°F (-43°C to +60°C)

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
4.8" high x 4.72" wide x 3.35" deep

WEIGHT:
5 lbs (includes mounting kit)

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GASGUARD R REFRIGERANT SENSOR

Key Features

- R22, R134a, R404a, R507a and other refrigerant gases detected
- Gas-specific infrared sensor technology – no false alarms
- Industry standard linear 4/20 mA output
- Corrosion, weather and chemical resistant sensor enclosure
- Sensor designed to adapt to any harsh environment from -50°F to +120°F
- Real-time continuous monitoring
- 0-500 ppm and 0-3,000 ppm ranges available
- Self-diagnostics of sensor elements for fail-safe operation
- Meets California Air Resources Board specifications with 0-500 ppm range

Industrial strength refrigerant leak detector for any harsh environment

The **GasGuard R** utilizes proven infrared sensor technology for fast and accurate leak detection. With no moving parts and no cells to replace, the **GasGuard R** provides real-time continuous monitoring and inexpensive long-term operating costs.

The **GasGuard R** is refrigerant gas specific, so false alarms from floor cleaners and food off-gasing is non-existent. The output signal is also not affected by EMI/RFI, moisture or drastic temperature variations such as washdowns, defrost cycles, etc.

The **GasGuard R** provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The high-quality polycarbonate enclosure offer excellent chemical corrosion protection and high impact resistance.

.

Applications

- Refrigeration Systems
- Food Processing areas
- Perimeter Monitoring
- Bottling Plants
- Breweries
- Ice Rinks
- Supermarkets
- Rack Houses
- Compressor Rooms
- Pharmaceuticals
- Sea Vessels

Benefits

- Extremely long life
- Low cost of ownership
- Simple operation
- Rugged and reliable
- Versatile for any application

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GasGuard R

The standard **GasGuard R** sensor comes equipped with a corrosion proof enclosure and adaptive temperature control, and is designed to work anywhere. With only one sensor for any application, designing, ordering and maintaining your refrigerant monitoring system is less hassle. The 0/500 ppm model provides the highest accuracy and lowest leak detection ability, starting at 10 ppm, to meet the California Air Resources Board specifications.

The **GasGuard R** is available for two different target gas classes. The R8 model operates at approximately 8 microns wavelength and detects R134a, R404a, R410a, R507a and other HFC gases. The R9 model operates at approximately 9 microns wavelength and detects R22, R11 and other CFC/HCFC gases.

The **GasGuard R** is prepared to survive in just about any harsh industrial condition. The adaptive temperature control system allows it to automatically adjust to extreme temperature fluctuations. Every sensor circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and even direct hose-hits from clean-up crews.

Ordering Information

The **GasGuard R** is delivered calibrated and ready to install. Use the model numbers below to order.

*0/500 ppm	0/3,000 ppm
GG-R134a-500	**GG-R134a-3000**
GG-R404a-500	**GG-R404a-3000**
GG-R410a-500	**GG-R410a-3000**
GG-R507a-500	**GG-R507a-3000**
GG-R22-500	**GG-R22-3000**

*Meets California Air Resources Board specifications

Other gases available. Contact us if your target gas is not listed

Mounting flanges for easy installation
Splashshield re-directs water from hose-hits to protect sensor
Large surface area gas-permeable tubes for fast leak detection
Single-screw door latch for fast and easy access
Completely potted sensor circuit board for corrosion protection
Heavy-duty hinge with stainless steel hinge-pin

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
(NDIR) Non-Dispersive Infrared

DETECTION METHOD: Diffusion

GAS:
R8 model: R134a, R404a, R410a, R507a
R9 model: R11, R22
Contact us for more HFC / CFC / HCFC gases

RANGE:
0/500 ppm
0/3,000 ppm
Contact us for custom ranges

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 350 mA

ACCURACY:
+/-5% of value, but dependant on calibration gas accuracy

RESOLUTION:
1% of full-scale

RESPONSE TIME:
T_{50} = less than 30 seconds
T_{90} = less than 60 seconds

ZERO DRIFT:
Less than 1% of full-scale per month, non-cumulative

SPAN DRIFT:
Less than 1% of full-scale per month, non-cumulative

LINEARITY:
+/- 3% of full-scale

REPEATABILITY:
+/- 1% of full-scale

WIRING CONNECTION:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft.

ENCLOSURE:
Injection-molded NEMA 4X polycarbonate
Hinged lid with captive screw. For non-classified areas.

TEMPERATURE RANGE:
-50°F to +120°F (-45°C to +49°C)

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
7.5" high x 6.5" wide x 3.75" deep

WEIGHT: 3 lbs

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GasGuard CO_2 Carbon Dioxide Sensor

Key Features

- CO2 specific infrared sensor technology.
- No more special-order guesswork or added costs for heated or stainless enclosures
- Industry standard linear 4/20 mA output
- Corrosion, weather and chemical resistant polycarbonate sensor enclosure
- Sensor designed to adapt to any harsh environment from -60°F to +120°F
- Accurately monitor OSHA's PEL and STEL setpoints for personnel protection
- Real-time continuous monitoring
- 0-3% range (0/30,000 ppm) allows setpoints at both critical levels (0.5% & 3.0%)

Industrial strength CO2 monitoring…for any harsh environment

The GasGuard CO2 utilizes proven infrared sensor technology for fast and accurate leak detection. With no moving parts and no cells to replace, the GasGuard CO2 provides real-time continuous monitoring and inexpensive long-term operating costs.

The GasGuard CO2 is carbon dioxide specific, so false alarms from floor cleaners and food off-gasing is non-existent. The output signal is also not affected by moisture or drastic temperature variations such as washdowns, defrost cycles, etc.

The GasGuard CO2 provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

.

Applications

- Wineries
- Food Processing areas
- Indoor Air Quality
- Bottling Plants
- Breweries
- Refrigeration Systems
- Perimeter Monitoring
- Chemical Plants

Benefits

- Versatile for any application
- Low cost
- Simple operation
- Rugged and reliable

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GasGuard CO_2

The standard **GasGuard CO2** sensor comes equipped with a corrosion proof enclosure and adaptive temperature control, and is designed to work anywhere. With only one sensor for any application, designing, ordering and maintaining your CO2 monitoring system is less hassle. The 0/3% range (0/30,000 ppm) is broad enough to handle OSHA's recommended alarm levels (0.5% and 3.0%), providing plenty of upper range detection for high output systems.

Designed "Food Industry" tough

The **GasGuard CO2** is prepared to survive in just about any harsh industrial condition. Every sensor circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and even direct hose-hits from clean-up crews.

Ordering Information

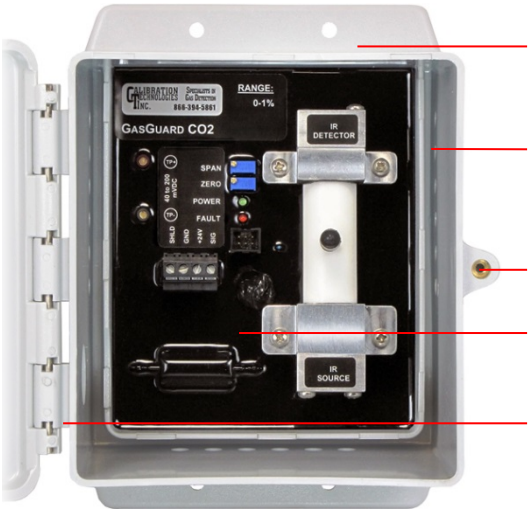
The **GasGuard CO2** is delivered calibrated and ready to install. Use the model numbers below to order.

Polycarbonate
GG-CO2-1%
GG-CO2-3% (*standard*)
GG-CO2-5%

Stainless steel
GG-CO2-3%-ST

NEW

Stainless steel enclosure option



Mounting flanges for easy installation

Splashshield re-directs water from hose-hits to protect sensor

Single-screw door latch for fast and easy access

Completely potted sensor circuit board for corrosion protection

Heavy-duty hinge with stainless steel hinge-pin

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
(NDIR) Non-Dispersive Infrared

DETECTION METHOD: Diffusion

GAS: Carbon Dioxide (CO2)

RANGE:
0/1%
0/3% (standard)
0/5%

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 350 mA

ACCURACY:
+/- 5% of value, but dependant on calibration gas accuracy

RESPONSE TIME:
T_{50} = less than 30 seconds
T_{90} = less than 60 seconds

ZERO DRIFT:
Less than 1% of full-scale per month, non-cumulative

SPAN DRIFT:
Less than 1% of full-scale per month, non-cumulative

LINEARITY:
+/- 3% of full-scale

REPEATABILITY:
+/- 3% of full-scale

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (Belden 8772 or equivalent) up to 1500 ft.

ENCLOSURE:
Injection-molded NEMA 4X polycarbonate
Hinged lid. For non-classified areas.

TEMPERATURE RANGE:
-60°F to +120°F (-51°C to +49°C)

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
7.5" high x 6.5" wide x 3.75" deep

WEIGHT: 3 lbs

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GASGUARD O_2 OXYGEN SENSOR

Key Features

- Oxygen specific electrochemical sensor technology
- "Long life" galvanic cell - up to10 years life at 20.9%
- Industry standard linear 4/20 mA output
- Corrosion, weather and chemical resistant polycarbonate sensor enclosure
- Temperature and moisture control for improved cell life
- Sensor designed to adapt to any harsh environment from +10°F to +125°F
- Accurately monitor oxygen deficiency or enrichment levels for personnel protection
- Real-time continuous monitoring for early leak detection.
- Two ranges available: 15-25% (standard), or 0-25%

Industrial oxygen level monitoring. Designed "food industry tough" with a long-life sensor.

The GasGuard O_2 utilizes a proven galvanic cell type oxygen sensor. With a large capacity electrolyte reservoir for exceptional cell life, the GasGuard O_2 electrochemical cell is designed with excellent chemical durability, and is not affected by interference gases such as carbon dioxide.

Every GasGuard O_2 sensor comes equipped with an internal temperature control designed to perform in the harshest of areas. The controlled environment provides temperature and moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard O_2 provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations such as washdown and defrost cycles, and is minimally affected by barometric pressure changes.

Applications

- Air Quality Monitoring
- Refrigeration Systems
- Confined Space
- Tank Rooms
- Food Processing
- Breweries

Benefits

- Low cost of ownership
- Simple operation
- Rugged and reliable

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GasGuard O_2

Durability and long life

No more hidden "adder" costs for stainless steel or heated boxes. The standard **GasGuard O_2** sensor is designed to work anywhere, and at a lower base-model price than most of our competition. With the rugged extended life cell, the **GasGuard O_2** sensor with give you years of trouble-free operation resulting in an extremely low cost of ownership. We typically recommend a 19.5% alarm setpoint for oxygen deficiency monitoring for personnel protection. 23.5% is usually desirable for oxygen enrichment situations.

Designed "Food Industry" tough

From hot mechanical rooms, to acid washdowns of processing areas, the **GasGuard O_2** is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and even direct hose-hits from clean-up crews. A stainless steel enclosure is also available for applications that require it.

Ordering Information

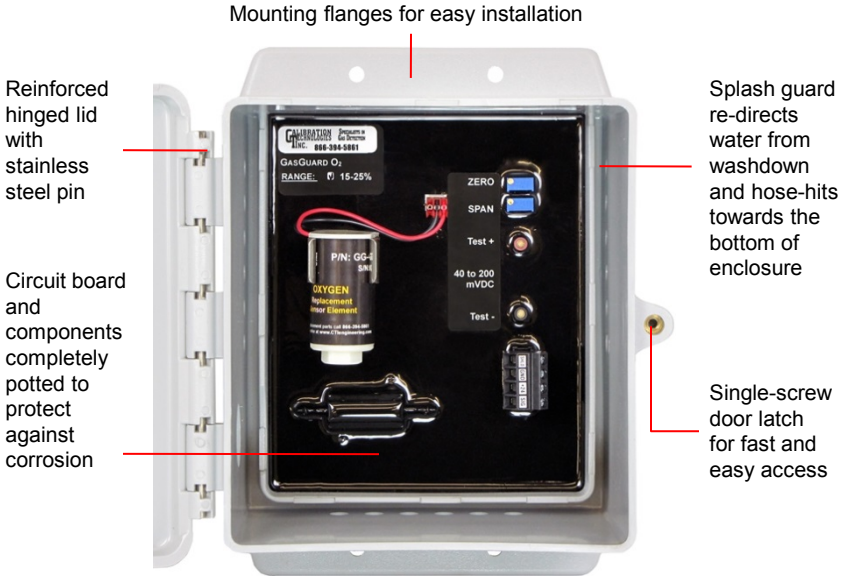
The **GasGuard O_2** is delivered calibrated and ready to install. Use the model numbers below to specify your factory calibrated range.

Polycarbonate
GG-O2-15/25 (*standard*)
GG-O2-0/25
GG-O2-RC (*replacement cell*)

Stainless Steel
GG-O2-15/25-ST

NEW

Stainless steel enclosure option


Mounting flanges for easy installation
Reinforced hinged lid with stainless steel pin
Circuit board and components completely potted to protect against corrosion
Splash guard re-directs water from washdown and hose-hits towards the bottom of enclosure
Single-screw door latch for fast and easy access
ZERO
SPAN
Test +
Test -
40 to 200 mVDC
OXYGEN

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
Galvanic Electrochemical

DETECTION METHOD:
Diffusion

GASES:
Oxygen (O2)

RANGES:
0/15% Vol (standard)
0/25% Vol

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 250 mA

PRESSURE LIMITS:
0.5 to 1.5 Atmosphere. Output signal is directly proportionate to ambient pressure changes

RESPONSE TIME:
T_{50} = less than 30 seconds
T_{90} = less than 60 seconds

ACCURACY:
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

ZERO DRIFT:
Less than 0.5% of full-scale per month, non-cumulative

SPAN DRIFT:
Less than 0.5% of full-scale per month, non-cumulative

LINEARITY:
+/- 0.5% of full-scale

REPEATABILITY:
+/- 1% of full-scale

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft.

ENCLOSURE:
Injection-molded NEMA 4X polycarbonate housing. Hinged lid. For non-classified areas.

TEMPERATURE RANGE:
+10°F to +125°F (-12°C to +52°C)

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
7.7" high x 6.7" wide x 3.8" deep

WEIGHT:
3.0 lb

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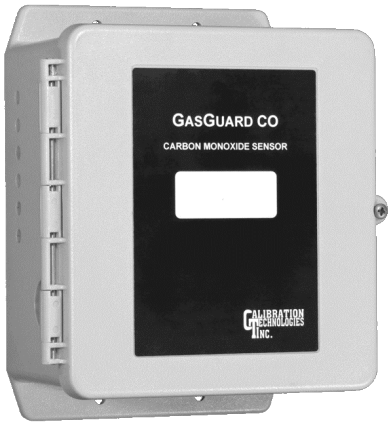
GASGUARD CO CARBON MONOXIDE SENSOR



Key Features

- CO specific electrochemical sensor technology. No false alarms
- 5 years cell life average in most applications
- Industry standard linear 4/20 mA output
- Corrosion, weather and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Sensor designed to adapt to any harsh environment from -20°F to +120°F
- Accurately monitor OSHA's PEL, STEL and IDLH setpoints for personnel protection
- Real-time continuous monitoring for early warning.
- Detectable range: 0-200 ppm

Long cell life. Simple operation. And rugged enough to survive the harshest industrial environments.

The GasGuard CO utilizes proven electrochemical sensor technology for fast and accurate leak detection. The standard detection range of the GasGuard CO provides real-time continuous monitoring of carbon monoxide concentrations accurately down to 10 ppm, with no false alarms.

Every GasGuard CO sensor comes equipped with an intelligent internal temperature control designed to perform in the harshest of areas. The controlled environment provides optimum moisture control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard CO provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations such as washdowns, defrost cycles, etc. Expect an average of 5 years cell life for most applications.

Applications

- Food Processing areas
- Warehouses
- Air Quality Monitoring
- Tank Rooms
- Ventilation Ducts
- Breweries
- Parking Garages
- Modified Atmosphere Packaging
- Bottling Plants
- Chemical Manufacturing

Benefits

- Low cost
- Simple operation
- Rugged and reliable

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GASGUARD CO

Easy ordering

The standard **GasGuard CO** sensor is designed to work anywhere, and at a lower base-model price than most of our competition. With only one sensor for any application, designing, ordering and maintaining your carbon monoxide monitoring system is less hassle.

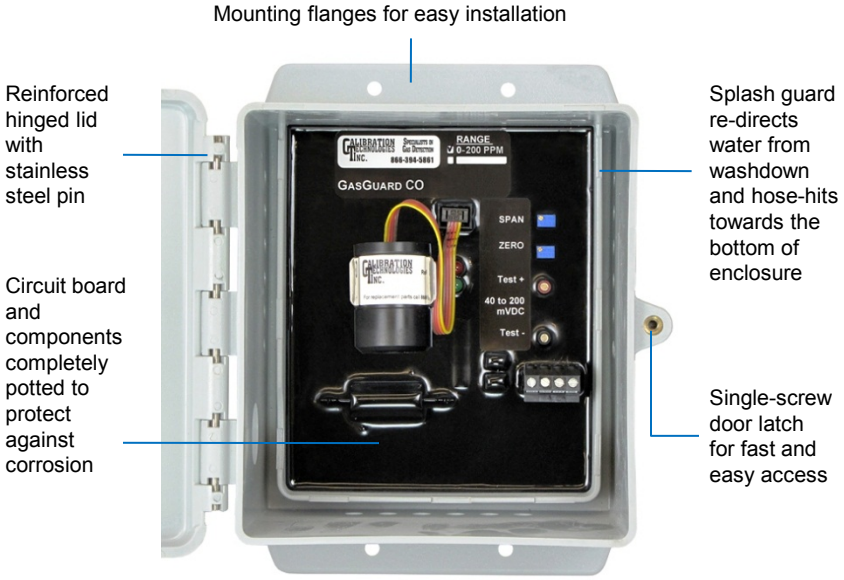
Designed "Food Industry" tough

Developed for chemical washdowns of processing areas, the **GasGuard CO** is prepared to survive in just about any harsh industrial condition. Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and even direct hose-hits from clean-up crews.

Ordering Information

The **GasGuard CO** is delivered calibrated and ready to install. Use the model numbers below to order.

GG-CO-200 (*standard*)
GG-CO-200-ST (*stainless steel enclosure*)
GG-CO-RC (*replacement cell*)


Mounting flanges for easy installation
Reinforced hinged lid with stainless steel pin
Circuit board and components completely potted to protect against corrosion
Splash guard re-directs water from washdown and hose-hits towards the bottom of enclosure
Single-screw door latch for fast and easy access
RANGE
0-200 PPM
GASGUARD CO
SPAN
ZERO
Test +
40 to 200 mVDC
Test -

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

DETECTION PRINCIPLE:
Electrochemical

DETECTION METHOD:
Diffusion

GASES:
Carbon Monoxide (CO)
Other gases available. Call for more information

RANGES:
0/200 ppm (standard)
Custom ranges available. Call for more information

OUTPUT SIGNAL:
Linear 4/20 mA (max input impedance: 700 Ohms)

POWER SUPPLY:
+24 VDC, 350 mA

RESPONSE TIME:
T_{50} = less than 10 seconds
T_{90} = less than 30 seconds

ACCURACY:
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

ZERO DRIFT:
Less than 0.1% of full-scale per month, non-cumulative

SPAN DRIFT:
Generally less than 2% per month

LINEARITY:
+/- 0.5% of full-scale

REPEATABILITY:
+/- 1% of full-scale

WIRING CONNECTIONS:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft.

ENCLOSURE:
Injection-molded NEMA 4X polycarbonate
Hinged lid. For non-classified areas.

TEMPERATURE RANGE:
-20°F to +120°F (-28°C to +49°C)

HUMIDITY RANGE:
5% to 100% condensing

DIMENSIONS:
7.5" high x 6.5" wide x 3.75" deep

WEIGHT:
2 lbs

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GASGUARD H_2-1% HYDROGEN SENSOR

Key Features

- Hydrogen selective catalytic bead sensor technology for long life
- Industry standard linear 4/20 mA output
- Corrosion, weather and chemical resistant polycarbonate sensor enclosure
- Intelligent-design enclosure temperature control for improved cell life
- Sensor designed to adapt to any harsh environment from -40°F to +120°F
- Real-time continuous monitoring for early detection of explosive concentrations.
- Detectable range: 0-1% (10,000 ppm or 25% LEL)
- Absolutely no Zero drift compared to other catalytic bead type sensors

Energy savings plus prevention of explosive hydrogen gas build-up.
The perfect solution for battery room ventilation.

The GasGuard H2-1% utilizes hydrogen selective catalytic bead sensor technology for fast and accurate detection. The standard detection range provides real-time continuous monitoring of hydrogen concentrations accurately down to 500 ppm, with no false alarms.

The intelligent internal temperature control of the GasGuard H2-1% provides optimum temperature control for extended cell life. The high-quality injection-molded polycarbonate enclosure offers excellent chemical corrosion protection and high impact resistance.

The GasGuard H2-1% provides an industry standard linear 4/20 mA output signal compatible with most gas detection systems and PLCs. The output signal is not affected by drastic temperature variations or other atmospheric conditions.

Applications

- Battery Charging Rooms
- Steel industry
- Refineries
- Perimeter Monitoring
- Heat treatment
- Sea Vessels

Benefits

- Simple operation
- Rugged and reliable
- Energy savings
- Long-life sensor

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GasGuard H_2-1%

The International Fire Code section 608.6.1 states "the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1% (25%LEL) of the total volume of the room" or "continuous ventilation shall be provided at a rate of not less than 1 cfm per square foot of floor area in the room".

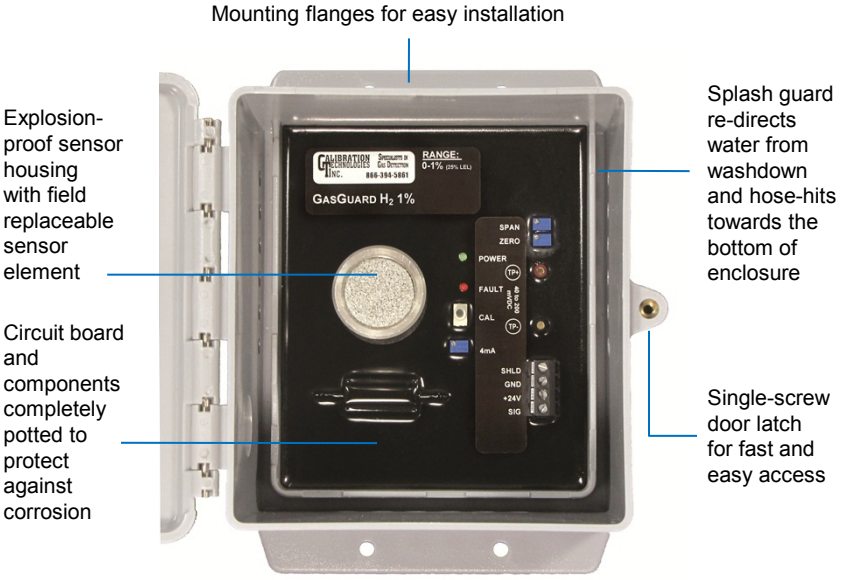
When using the **GasGuard H2-1%** in combination with any of our GasGuardian controller line (or any other 4/20 mA input device), exhaust fan activation will prevent dangerous accumulation of explosive hydrogen gas concentrations. Since continuous ventilation in refrigerated areas can add up to huge costs, activating exhaust fans only when necessary can amount to thousands of dollars a year in energy savings for your company.

Every circuit board is sealed forever in potting compound, protecting electronic components and copper tracing from corrosion. A specially vented chemical-resistant polycarbonate enclosure protects the sensor from accidental damage, weather and direct hose-hits from clean-up crews.

Ordering Information

The **GasGuard H2-1%** is delivered calibrated and ready to install. Use the model numbers below to order.

GG-H2-1%
GG-H2-1%-RS (*replacement sensor*)



SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

Detection Principle:
Catalytic Bead

Detection Method:
Diffusion

Gases:
Hydrogen (H2)

Ranges:
0/1% (10,000 ppm) (25% LEL)

Output Signal:
Linear 4/20 mA (max input impedance: 700 Ohms)

Power Supply:
+24 VDC, 250 mA

Response Time:
T_{50} = less than 30 seconds
T_{90} = less than 60 seconds

Accuracy:
+/- 5% of value, but dependant on calibration gas accuracy and time since last calibration

Zero Drift:
Less than 0.1% of full-scale per month, non-cumulative

Span Drift:
Less than 2% per month

Linearity:
+/- 0.5% of full-scale

Repeatability:
+/- 1% of full-scale

Wiring Connections:
3 conductor, shielded, stranded, 20 AWG cable (General Cable C2525A or equivalent) up to 1500 ft.

Enclosure:
Injection-molded NEMA 4X polycarbonate enclosure. Captive screw in hinged lid. For non-classified areas.

Temperature Range:
-40°F to +120°F (-40°C to +49°C)

Humidity Range:
5% to 100% condensing

Dimensions:
7.5" high x 6.5" wide x 3.75" deep

Weight:
3 lbs

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Specialists in Gas Detection

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CALIBRATION KIT

Key Features

- One year shelf life for most certified gases
- Large stock of most popular concentrations
- Custom mixes available
- Replacement regulators and cylinders available
- Pressure gauge on all regulators

Calibration Technologies gas sensor calibration kits and replacement cylinders allow for field calibration of most fixed and portable gas detectors. The disposable certified gas cylinders are N.I.S.T. traceable. After initial purchase, replacement cylinders can be ordered at any time.

Standard cylinder sizes include either 17 or 29 liters. The 17L cal kit will include a regulator (female fitting) for use with the CGA600 outlet fitting (male fitting) of the 17L cylinder. The 29L cal kit will include a regulator (male fitting) for use with the C-10 outlet fitting (female fitting) of the 29L cylinder.

Each regulator is preset for 0.8 liters per minute with an easy on/off valve and includes a cylinder pressure gauge. The Calibration Kit also includes 3' of Norprene tubing and flexible calibration adaptors designed to fit most standard size gas cells and sensors. All kit accessories are enclosed in a durable hard carrying case with foam inserts.

Applications

- Periodic sensor calibration requirements
- OSHA PSM compliance
- Safety system verification
- Regulatory and insurance requirements

Accessories included

- Hard carrying case (holds two cylinders)
- 0.8 LPM regulator with pressure gauge
- Norprene tubing and calibration adaptors
- Up to two cylinders of certified cal gas

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CALIBRATION KIT

17 Liter Calibration Kit

Part Number	Description
Cal Kit 17L	Calibration Kit with regulator for 17 liter bottle, calibration adaptors, and rugged carrying case that holds two bottles (gas not included)

17 Liter Bottle, 240 psi (balanced in air unless noted)

Part Number	Description
RB17L-NH3/25	25 ppm ammonia
RB17L-NH3/50	50 ppm ammonia
RB17L-NH3/100	100 ppm ammonia
RB17L-NH3/250	250 ppm ammonia
RB17L-NH3/500	500 ppm ammonia
RB17L-NH3/1000	1000 ppm ammonia
RB17L-NH3/1%	1.0% ppm ammonia
RB17L-NH3/2%	2.0% ppm ammonia
RB17L-ZA	Zero air (20.9% O2)
RB17L-CO2/1%	1.0% carbon dioxide, bal N_2
RB17L-CO2/3%	3.0% carbon dioxide, bal N_2
RB17L-CO2/5%	5.0% carbon dioxide, bal N_2
RB17L-O2/15%	15% oxygen
RB17L-N2	100% nitrogen
RB17L-CO/200	200 ppm carbon monoxide
RB17L-CH4/1.0%	1.0% methane
RB17L-CH4/2.5%	2.5% methane
RB17L-H2/2000	2000 ppm hydrogen
RB17L-H2/1%	1.0% hydrogen (25% LEL)
RB17L-R22/500	500 ppm R22
RB17L-R134a/500	500 ppm R134a
RB17L-R404a/500	500 ppm R404a
RB17L-R507a/500	500 ppm R507a

More gases and concentrations available on our website

17 liter regulator

---

29 Liter Calibration Kit

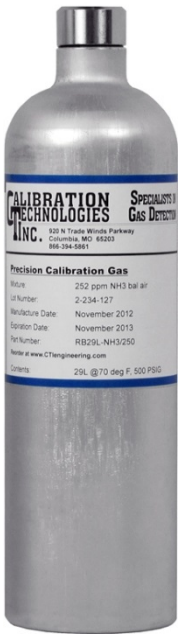
Part Number	Description
Cal Kit 29L	Calibration Kit with regulator for 29 liter bottle, calibration adaptors, and rugged carrying case that holds two bottles (gas not included)

29 Liter Bottle, 500 psi (balanced in air unless noted)

Part Number	Description
RB29L-NH3/25	25 ppm ammonia
RB29L-NH3/50	50 ppm ammonia
RB29L-NH3/100	100 ppm ammonia
RB29L-NH3/250	250 ppm ammonia
RB29L-NH3/500	500 ppm ammonia
RB29L-NH3/1000	1000 ppm ammonia
RB29L-NH3/1%	1.0% ppm ammonia
RB29L-NH3/2%	2.0% ppm ammonia
RB29L-4GAS-B	O2, CH4, CO, H2S (18%, 50%LEL, 100 ppm, 25 ppm)
RB29L-R22/1000	1000 ppm R22
RB29L-ZA	Zero air (20.9% O2)
RB29L-CO2/1%	1.0% carbon dioxide, bal N_2
RB29L-CO2/3%	3.0% carbon dioxide, bal N_2
RB29L-CO2/5%	5.0% carbon dioxide, bal N_2
RB29L-R22/500	500 ppm R22
RB29L-R134a/500	500 ppm R134a
RB29L-R404a/500	500 ppm R404a
RB29L-R507a/500	500 ppm R507a

More gases and concentrations available on our website

29 liter regulator



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HORN / STROBE SHA-24

Key Features

- Weatherproof design for outdoor or washdown installations
- 24 VDC operation
- Separate horn and strobe circuits allow for multiple wiring configurations
- High intensity intermittent strobe flash
- Blue strobe lens
- Field selectable horn tone – continuous , temporal or chime pattern
- Corrosion, weather and chemical resistant enclosure for washdown areas
- Labeled for ammonia, but sticker can be removed to utilize unit for other gases

High visibility in a weather-proof package.
The perfect addition to your gas detection system.

The SHA series horn/strobe is designed to provide audible/visual signal for life safety and property protection. They meet or exceed NFPA/ANSI standards and UL464/UL1638.

The horn provides either a continuous tone or a temporal pattern tone. The horn and strobe can be connected independently or in unison. The horn can be silenced while the strobe remains flashing.

The SHA series horn/strobe is housed in a durable poly enclosure, able to withstand weather and washdown environments. A weatherproof mounting backbox is included.

SPECIFICATIONS

STROBE INTENSITY: 65 Candela

SOUND OUTPUT: 100 dB @ 10 ft

FLASH RATE: 1 flash per second

SUPPLY VOLTAGE: +24 VDC @ 150 mA using default settings (detailed on page 2)

OPERATING TEMPERATURE: -40°F - +150°F

APPROVALS: UL1638
Designed to meet or exceed ANSI/NFPA standards and ADA accessibility guideline

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HORN / STROBE SHA-24

Wiring Diagram

The SHA-24 can be wired to operate the horn and strobe together or as two individual circuits.

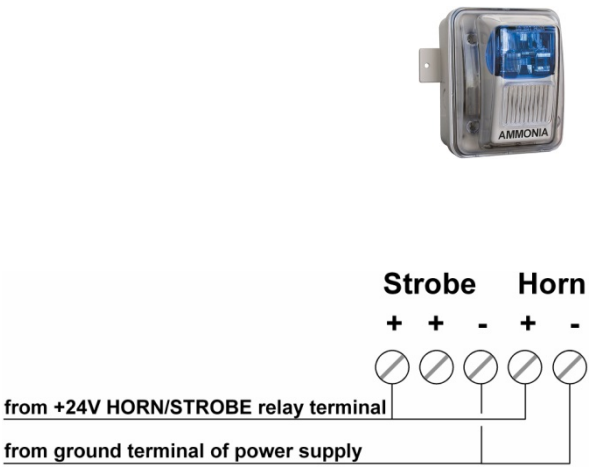

Figure 1
Strobe and Horn to operate together

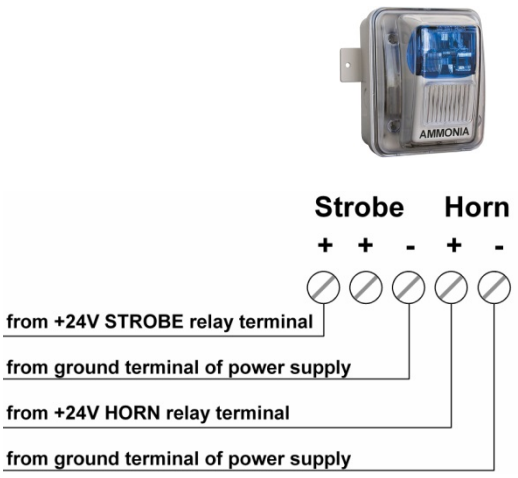

Figure 2
Strobe and Horn to operate independently

Dipswitch Settings

The SHA-24 is shipped with default settings for 4-wire operation and optimal horn settings. The following describes the dipswitch settings.

Horn/strobe operation:
1 and 2 ON = Horn/strobe on 2 wires
1 and 2 OFF = Horn and Strobe on 4 wires

Volume:
6 ON = High
6 OFF = Low

Tone/Pattern:

	SWITCH POSITION		
TONE	3	4	5
Mechanical Temporal 3	ON	ON	ON
Mechanical - Continuous	OFF	ON	ON
2400Hz - Temporal 3	ON	OFF	ON
2400Hz - Continuous	OFF	OFF	ON
Chime - Temporal 3	ON	ON	OFF
Chime - Continuous	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

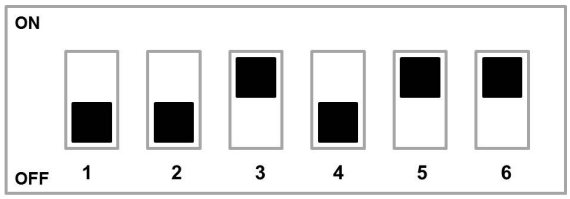

Figure 3
Default settings

*100 dB based on anechoic rating using default switch settings as shown. Anechoic dBA is measured on axis in a non-reflective (free field) test room using fast meter peak response. Reverberant dBA is a minimum UL rating based on sound power measurements in a reverberant test room.

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HORN / STROBE SHA-120

Key Features

- 120 VAC, two-wire connection
- Horn and strobe activate together
- Blue strobe lens cover
- Field selectable horn tone – continuous or temporal pattern
- Field selectable candela settings – low to high intensity flash
- Corrosion, weather and chemical resistant enclosure for washdown areas
- Weatherproof backbox included for outdoor installation
- -40°F to 150°F, NEMA 4X
- Labeled for ammonia, but sticker can be removed to utilize for other gases

High visibility in a weather-proof package.
The perfect addition to your toxic gas alert system.

The SHA-120 series horn/strobe is designed to provide audible/visual signal for life safety and property protection. They meet or exceed NFPA/ANSI standards and UL464/UL1638.

The horn provides either a continuous tone or a temporal pattern tone, with a 3-position volume switch. A slide switch allows for several candela settings from low to high intensity.

The SHA-120 series horn/strobe is housed in a durable poly enclosure, able to withstand weather and washdown environments. A 120 VAC adaptor plate and weather-proof mounting backbox is included.

SPECIFICATIONS

STROBE INTENSITY: 15 to 185 Candela

SOUND OUTPUT: 99 dB @ 10 ft

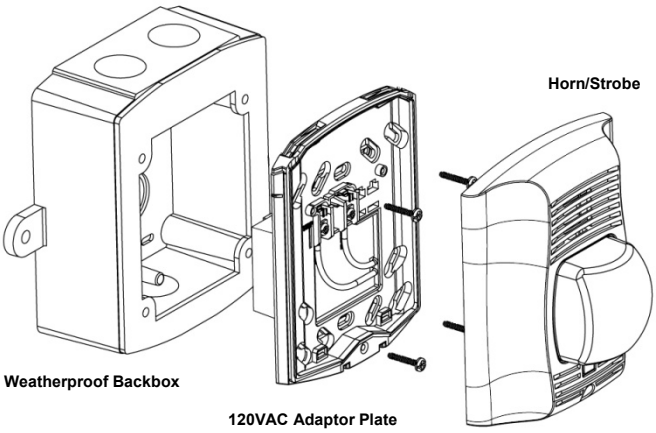
FLASH RATE: 1 flash per second

SUPPLY VOLTAGE: 120 VAC, 150 mA max

OPERATING TEMPERATURE: -40°F - +150°F

DIMENSIONS: 6" X 7" X 5" (H x W x D)

APPROVALS: UL listed
Designed to meet or exceed ANSI/NFPA standards and ADA accessibility guideline



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STACKLIGHT

Key Features

- Flashing colored light modules display at-a-glance alarm status
- User selectable horn tone – continuous or temporal pattern
- Fluted light modules allow for easy viewing even in sunlight
- LEDs provide 50,000 hours working life for zero maintenance
- 24 VDC with low power consumption
- Separate horn and light circuits allow for multiple wiring configurations
- Corrosion, weather and washdown area safe

At-a-glance information for the ultimate in personnel protection. A must-have for any toxic gas alert system.

The Omni-directional LED lights and horn provide vital life-safety information to protect your personnel. The differentiated colors also provide crucial indications as to the severity of the leak situation.

Housed in durable polycarbonate modules, the bright LEDs provide over 50,000 work ours of maintenance free life. The 100dB horn comes standard and has selectable settings for continuous tone or a temporal pattern tone.

The Stack Light casing has a sealant rating of IP 55 (total ingress protection from dust and water spray from any direction). The ½" NPT conduit adaptor allows for and easy junction box or panel mounting.

SPECIFICATIONS

OPERATING TEMPERATURE: -10°F to 125°F

SOUND OUTPUT: 100 dB @ 10 ft

FLASH TYPE: Flashing (84 fpm) (Green LED module is non-flashing)

POWER: +24 VDC, (40 mA max each LED module; 180 mA buzzer)

MATERIAL: Polycarbonate

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STACKLIGHT

The audible LED stack lights are designed for visual and audible signaling in order to display the real-time status of the gas detection system.

Up to 7 modules can be combined into one stacklight assembly.

Below is an example configuration:

Green Light On (optional)

Steady on. No leaks detected. Gas concentration is below the low alarm level. Workplace assumed safe for personnel. Turns off upon alarm.

Amber Light

Flashing. Low alarm level reached. Gas concentration may require limited time allowable for personnel. Emergency ventilation if possible.

Red Light

Flashing. High alarm level reached. Gas concentration dangerous. Evacuation and equipment shutdown may be required.

Audible Alarm

High alarm level reached. Gas concentration dangerous. Evacuation and equipment shutdown may be required.

Audible Alarm
High alarm audio signaling buzzer
Temporal or Steady

LED Module
High-alarm visual indicator, red
Flashing

LED Module
Low-alarm visual indicator, amber
Flashing

LED Module
System normal visual indicator, green
Steady

Wiring Module
Contains screw terminals and wiring

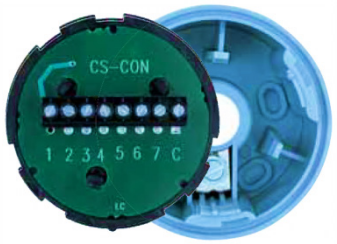
Conduit Mount Base
½" NPT fitting for conduit hole mount

Ordering Information

Standard **Stacklight** packages are listed below. Each stacklight comes standard with (1) buzzer, (1) base wiring module, (1) conduit mount base, and LED modules of your choice. Custom configurations are available, but lead times are typically 2-3 weeks. Use the model number below to order.

Model number: **SL-24-F-R-B** (red module)
SL-24-F-AR-B (amber and red modules)
SL-24-F-GAR-B (green, amber and red modules (as shown))
SL-24-F-BWAR-B (blue, white, amber and red modules)
SL-24-F-BGAR-B (blue, green, amber and red modules)
SL-24-F-GWAR-B (green, white, amber and red modules)

Other options and replacement parts available. Contact Calibration Technologies for a quote.



Wiring Module
"C" terminal is Common to all connected modules. Numbers 1 through 7 refer to the modules, from the base to the top.

C = Common (Power supply ground)
1 = +24VDC for first module
2 = +24VDC for second module
3 = +24VDC for third module
4 = +24VDC for fourth module
5 = +24VDC for fifth module
6 = +24VDC for sixth module
7 = +24VDC for seventh module

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NH_3 RESPONDER

Portable Ammonia Leak Detector

Specially configured
GasAlert Micro 5 PID

Key Features

- Smaller and 50% lighter than competitive instruments
- Water-resistant design in an integral concussion-proof enclosure
- Large LCD allows for easy-to-read monitoring
- Integral motorized pump for remote sampling and fast response
- AA battery powered for easy replacement. No expensive, hard-to-find rechargeables
- 95 dB alarm tone, bright LED alarm bars, & internal vibrating alarm for noisy areas
- Auto backlight: activates in low light & when in alarm
- Four alarm levels: instantaneous Low Alarm, High Alarm, TWA and STEL
- Records TWA, STEL, and max exposures to gas & displays readings on command
- Datalogger with programmable sampling intervals

With full-range detection from 0 ppm to 100% LEL,
it's the only portable ammonia detector you'll ever need

The NH3 Responder utilizes two sensor technologies to cover the ranges of interest in an ammonia response operation. The low-level sensor is a PID sensor which will give you ammonia concentration readings in the range of 0-1,000 ppm for the 35 ppm PEL and 300 ppm IDLH decision making points.

At concentrations over 1,000 ppm, the PID sensor will display "OL" and the LEL sensor takes over, giving you %LEL readings for the explosive-levels decision making range. Most response trainers are recommending leaving the area at 10%LEL.

Additionally, the PID sensor has an extremely fast response time and is useful for finding small ammonia leaks. Think of it as an "electronic sulfur stick". Your refrigeration technicians will find this a useful tool for locating difficult-to-find leaks by "sniffing" around valve packing, sight glasses, shaft seals, etc.

Applications

- Compressor Rooms
- Tank Rooms
- Vent Lines
- Air Monitoring
- Sea vessels
- Food Processing
- Chemical Plants
- Refrigeration Systems
- Gas Bottling Plants
- Emergency Response

Accessories included

- Integral motorized pump
- Sampling wand
- Sampling tubing
- AA alkaline battery pack
- Spare AA battery set
- Hard carrying case
- User manual

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NH_3 RESPONDER

Equipped with one of the largest LCD's, the **NH3 Responder** is still smaller and lighter than the competitors' models The special low-temp LCD is designed to stay readable at temperatures down to -10 °F, so looking for leaks in freezers no longer requires many short-term sessions or "insulating" the instrument.

The **NH3 Responder** comes equipped with an integral motorized pump. Audible, visual and vibrator alarms activate in the event of a low, high, TWA or STEL alarm condition. Other standard features include automatic calibration, datalogger, full function self-test, user selectable confidence beep, stealth mode, backlight options, selectable ppm resolution, STEL / TWA measurement choice, combustible correction factor options, user-settable calibration gas concentrations and multi-language support.

Ordering Information

The **NH3 Responder** is delivered ready for use with PID and LEL sensors, integral motorized pump, AA alkaline battery set, spare AA battery set, sampling wand and hose (3 ft), stainless steel alligator belt clip, instructions and a rugged hard-shell carrying case.

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

BATTERY: 12 hours runtime on three AA alkaline cells (run-time dependent on backlight usage).

PUMP: Integral motorized rotary pump. Tubing length up to 100 ft. / 30 m (50 ft. / 15 m standard) with user options.
Clock: Real-time clock setting displayed on start-up.
Calibration due date: Days remaining until next calibration displayed on start-up.

SENSORS: Plug-in, PID (VOC) 10.6 eV lamp; catalytic (LEL).
NH3 Standard: PID (VOC) 0-1000ppm and catalytic (0-100%LEL) .

LCD: Continuous, alphanumeric gas readout and status display advises:
Backlight: Standard Mode: low light (auto); alarm condition (auto); reactivation on demand.
Alarm Only Mode: alarm condition (auto); reactivation on demand.
Stealth Mode: backlight inactive; audible and visual alarms silenced

ALARM INDICATORS: Clearly advises alarm conditions with audible, visual, and internal vibrator alarms.
Visual alarms: Two flashing alarm bars visible from all angles.
LCD indicates gas present and alarm levels encountered.
Audible alarm: Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm.
Vibrator alarm: Pulses warning in gas alarm conditions, or for any status alarms.
Status alarms: Low battery, over range, multiple gas, pump and failed or missing sensor.

ALARM LEVELS: Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average) and STEL (short-term exposure limit).
Alarm setpoints: Displayed on activation and on demand.

TESTS: Full function self-test. Sensor integrity, circuitry, battery and audible/visual alarms on activation.
Battery: Continuous monitoring and display.

WARRANTY: Full 1-year warranty including sensors.

GENERAL SPECIFICATIONS: Rugged, composite material; two-shot molded polymer case with integral anti-shock boot.
Humidity: 0 - 95% RH (non-condensing).
Protection: Highly water-resistant and dust proof housing.
Size: 5.7 x 2.9 x 1.5 in.
Weight: 13.1 oz.
Auto zero: Yes.
Calibration: 6-month intervals.
Gas concentration: Simultaneously and continuously displays gas concentration(s) for all sensors (in ppm or % LEL).
Peak (max)/STEL/TWA ppm or %: Records exposures and displays on demand.
User field options: Confidence beep, set STEL period, force calibration on start-up, enable / disable sensor, pass code protection, latching alarms, span level, passed calibration user-lockout option, "SAFE" display function, stealth mode, fast pump, alarm only backlight mode, LCD language option, STEL calculation choice, TWA calculation choice, PID / combustible correction factor options, user-settable calibration gas level, high resolution, clock.

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CO_2 RESPONDER

Portable Carbon Dioxide Detector

GasAlertMicro 5 IR

Key Features

- Smaller and lighter than competitive instruments
- Water-resistant design in an integral concussion-proof enclosure
- Large LCD allows for easy-to-read monitoring
- Integral motorized pump for remote sampling and fast response
- AA battery powered for easy replacement. No expensive, hard-to-find rechargeables
- 95 dB alarm tone, bright LED alarm bars, & internal vibrating alarm for noisy areas
- Auto backlight: activates in low light & when in alarm
- Four alarm levels: instantaneous Low Alarm, High Alarm, TWA and STEL
- Records TWA, STEL, and max exposures to gas & displays readings on command
- User selectable options: confidence beep, set calibration due date, latching alarm
- Full function self-test of: sensor, battery, circuit integrity and audible/visual alarms

Industrial strength CO2 detection from 0 to 50,000 ppm.
Infrared. Lightweight. Reliable.

The CO2 Responder utilizes infrared sensor technology for the most accurate and reliable performance. The highly selective infrared sensor guarantees only CO2 gas is detected with no chance of false readings from other interference gases.

The compact and lightweight CO2 Responder comes loaded with features. Auto-backlit LCD, four alarm levels and max exposure levels, just to name a few. The display is user configurable to display CO2 readings in either PPM or %.

With it's the motorized integral sampling pump, response times are extremely fast. The CO2 Responder can be a useful tool for indoor air quality monitoring and CO2 leak detection for quickly determining dangerous levels of CO2.

Applications

- Food Processing
- Wineries
- Breweries
- Bottling
- Greenhouses
- Indoor Air Quality
- Industrial Hygiene
- Refrigeration Systems
- Gas Bottling Plants
- Produce Storage

Accessories included

- Integral motorized pump
- Sampling wand
- Sampling tubing
- AA battery pack
- Spare AA battery set
- Hard carrying case
- User manual

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CO_2 RESPONDER

Equipped with one of the largest LCD's, the **CO2 Responder** is still smaller and lighter than the competitors' models.

The **CO2 Responder** comes equipped with an integral motorized pump. Audible, visual and vibrator alarms activate in the event of a low, high, TWA or STEL alarm condition. Other standard features include automatic calibration, full function self-test, user selectable confidence beep, stealth mode, backlight options, selectable ppm resolution, STEL / TWA measurement choice, user-settable calibration gas concentrations and multi-language support.

Ordering Information

The **CO2Responder** is delivered ready for use with IR-CO2 sensor, and integral motorized pump, AA alkaline battery set, spare AA alkaline battery set, sampling wand and hose (5 ft), stainless steel alligator belt clip, instructions and a rugged hard-shell carrying case.

SPECIFICATIONS

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

BATTERY: 12 hours runtime on three AA alkaline cells (runtime dependent on backlight usage).

PUMP: Integral motorized rotary pump. Tubing length up to 100 ft. / 30 m (50 ft. / 15 m standard) with user options.
Clock: Real-time clock setting displayed on start-up.
Calibration due date: Days remaining until next calibration displayed on start-up.

SENSORS: Plug-in, IR (infrared) Carbon Dioxide
Range: 0-5% (0-50,000 ppm)

LCD: Continuous, alphanumeric gas readout and status display advises:
Backlight: Standard Mode: low light (auto); alarm condition (auto); reactivation on demand.
Alarm Only Mode: alarm condition (auto); reactivation on demand.
Stealth Mode: backlight inactive; audible and visual alarms silenced

ALARM INDICATORS: Clearly advises alarm conditions with audible, visual, and internal vibrator alarms.

Visual alarms: Two flashing alarm bars visible from all angles.
LCD indicates gas present and alarm levels encountered.

Audible alarm: Typically 95 dB at 1 ft. / 30 cm variable pulsed audible alarm.
Vibrator alarm: Pulses warning in gas alarm conditions, or for any status alarms.
Status alarms: Low battery, over range, multiple gas, pump and failed or missing sensor.

ALARM LEVELS: Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average) and STEL (short-term exposure limit).
Alarm setpoints: Displayed on activation and on demand.

TESTS: Full function self-test. Sensor integrity, circuitry, battery and audible/visual alarms on activation.
Battery: Continuous monitoring and display.
Sampling rate: Factory set at 5-second intervals and user-settable from 1 to 127-second intervals.

WARRANTY: Full 1-year warranty including sensors.

GENERAL SPECIFICATIONS: Rugged, composite material; two-shot molded polymer case with integral anti-shock boot.
Humidity: 0 - 95% RH (non-condensing).
Protection: Highly water-resistant and dust proof housing.
Size: 5.7 x 2.9 x 1.5 in.
Weight: 13.1 oz.
Auto zero: Yes.
Calibration: 6-month intervals.
Gas concentration: Simultaneously and continuously displays gas concentration(s) for all sensors (in ppm or % LEL).
Peak (max)/STEL/TWA ppm or %: Records exposures and displays on demand.
User field options: Confidence beep, set STEL period, force calibration on start-up, enable / disable sensor, pass code protection, latching alarms, span level, passed calibration user-lockout option, "SAFE" display function, stealth mode, fast pump, alarm only backlight mode, LCD language option, STEL calculation choice, TWA calculation choice, PID / combustible correction factor options, user-settable calibration gas level, high resolution, clock.

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CONFINED SPACE ENTRY KIT

With Multi-Gas Detector

Features

- BW MicroClip-XT detector – O2, CO, H2S and LEL
- Compact, lightweight and easy to wear
- IntelliFlash™ verifies operation and compliance
- Continuous LCD shows real-time concentrations
- One-button operation reduces training time
- Audible, visual and vibrating alarms
- Simple automatic calibration procedure
- Diffusion method – no pump to maintain
- Simple Lithium polymer battery
- 10 hr battery life – recharges in less than 4 hrs
- Built-in concussion boot and alligator clip
- Kit includes detector, charger, gas, regulator, hose, calibration adaptor, manual and carrying case

The extremely affordable Confined Space Entry Kit.
Keeping your personnel safe and OSHA satisfied.

This kit contains everything you'll need for atmospheric testing prior to entry and during occupancy of confined spaces, along with a field calibration kit to keep the detector accurate and in compliance. The 34 liter cylinder provides enough gas for many calibrations and bump tests. Replacement bottles can be ordered at any time.

The included BW Technologies GasAlert MicroClip-XT 4-gas detector provides the best bang-for-the-buck without compromising performance. Smaller than most cell phones, it's compact design is easy to wear, is water resistant, and is surrounded by a concussion-proof rubberized boot with built-in heavy-duty alligator clip.

Simple one-button operation for the ultimate ease of use reduces training time and prevents operator error. Continuous visual confirmation of detector operation and compliance with the IntelliFlash™ feature. Audible, visual and vibrating alarms will ensure that potentially hazardous conditions will not go unnoticed.

Benefits

- Low initial cost and cost of ownership
- Compact and lightweight
- Simple operation
- Full 2-year warranty, including sensors

Accessories included

- GasAlert MicroClip-XT detector
- 0.8 LPM regulator with pressure gauge
- Norprene tubing and calibration adaptor
- 34 liter cylinder of 4-gas mix, balance N2
- AC charger
- Operation manual
- Carrying case

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CONFINED SPACE ENTRY KIT

SPECIFICATIONS

BATTERY: Single Lithium polymer. 10 hours runtime (typical); recharges in less than 4 hours.

SENSORS: Alarm setpoints for all sensors are user adjustable. Setpoints are displayed during instrument startup. All sensors are plug-in type and field replaceable.
H2S: Electrochemical; 0-100 ppm with 1 ppm resolution.
CO: Electrochemical; 0-500 ppm with 1 ppm resolution.
O2: Electrochemical; 0-30% with 0.1% resolution.
Combustible: Catalytic; 0-100% LEL with 1% resolution. (or 0-5.0% v/v with 0.1% resolution.)

LCD: Continuous, alphanumeric gas readout and status display.

ALARMS: Clearly advises alarm conditions with audible (95 dB), visual (LED light bars), and internal vibrator alarms. Instantaneous Low Alarm; Instantaneous High Alarm; TWA (time-weighted average), STEL (short-term exposure limit) and OL (over limit).

TESTS: Full function self-test. Audible/visual alarms on activation, sensors, battery and circuitry (continuous)

GENERAL SPECIFICATIONS: Rugged, composite material; two-shot molded polymer case with integral anti-shock boot.
Temperature: -4 to 122°F / -20 to +50°C.
Humidity: 0 - 95% RH (non-condensing).
Protection: Highly water-resistant and dust proof housing.
Size: 4.4 x 2.4 x 1.1 inches.
Weight: 6 oz.
Calibration due date: Days remaining until next calibration displayed on start-up.
Calibration: 6-month intervals.

USER OPTIONS: Confidence beep, set STEL interval, force calibration when overdue, auto zero on startup, O2 auto calibration on startup, enable/disable sensor, latching alarms, calibration lock option, safe display function, stealth mode, fast pump, LCD language option, user-settable calibration gas level, stealth mode, IntelliFlash interval, force bump test when overdue, force calibration when overdue, low alarm acknowledge, set custom startup message, combustible gas measurement (%LEL or % by volume methane).

CALIBRATION GAS: Certified Calibration Gas, 34L bottle, 50ppm CO, 50%LEL CH4, 25ppm H2S, 18% O2, balance nitrogen.

REGULATOR: 0.8 lpm, on/off valve, with pressure gauge.

OPTIONAL ACCESSORIES: Motorized sampling pump, holster, auxiliary filter kit, IR connectivity kit and five-unit cradle charger. Contact Calibration Technologies for more info.

WARRANTY: Full 2-year warranty including sensors.

DUE TO ONGOING RESEARCH AND PRODUCT IMPROVEMENT, SPECIFICATIONS ARE SUBJECT TO CHANGE

Ordering Information

The **Confined Space Entry Kit** is delivered ready for use with the detector calibrated and battery charged. Included is the detector, charger, gas, regulator, hose, calibration adaptor, manual and carrying case.
Use the order numbers below to order the kit or kit replacement parts.

Kit

CSEK-GAMCXT	Confined space entry kit

Kit parts

GAMCXT	GasAlert MicroClip-XT Multi-gas detector
RB34L-4gas-A	Certified Calibration Gas, 34L bottle, 50ppm CO, 50%LEL CH4, 25ppm H2S, 18% O2, balance nitrogen

Actual size

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Let us help you with all of your gas detection needs

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AUTODIALER AD-400

Remote Monitoring and Alarm Notification System

When an alarm is detected, the AD-400 can notify four people by making voice phone calls. It will continue to make phone calls until someone responds to the call. Four inputs are available for connection to dry relay contacts of external monitoring equipment. The AD-400 also includes nonvolatile memory and a 24-hour battery backup with user-installed batteries. For indoor installation, non-classified areas only.

- 4 contact closure inputs
- 1 relay output
- Dials up to 4 phone numbers
- AC power monitor
- Temperature sensor
- Battery backup

Features

Input Zones:
- Four inputs that support:
  Normally Open or Normally Closed contacts
  Temperature sensors: -20° to 150°F
- Automatic input type configuration.
- Programmable recognition times.
- Internal calibration.

Alarm Notification:
- Dials up to 4 phone numbers.
- Makes voice phone calls with customized messages for easy identification.
- Built-in alarm test function to simulate and test the notification process.
- Includes telephone line seizure.

Voice Messages:
- Built in vocabulary for keypad programming and sensor readings.
- Record custom voice phrases in your own voice to describe each input zone.
- Record site identification message.

Microphone:
- Internal microphone for custom voice message recording.

Output Relay:
- Low voltage NO/NC output relay included.
- Manual or automatic alarm response switching.

Remote Access:
- Call in to check the status of all monitored conditions.
- Make programming changes remotely from any phone.
- Remotely control the output relay.

Local Access:
- Keypad and speaker for local programming.
- Easy voice-prompted programming.
- Password-protected to restrict programming access.

Power Supply:
- Comes with plug-in power supply.
- 24 Hour battery backup using 6 size C alkaline batteries (not included).
- Automatically monitors for power failure alarms.

Temperature Sensor:
- -20°F to +150°F remote sensor included

Ordering Information
Model number: AD-400

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AUTODIALER AD-400

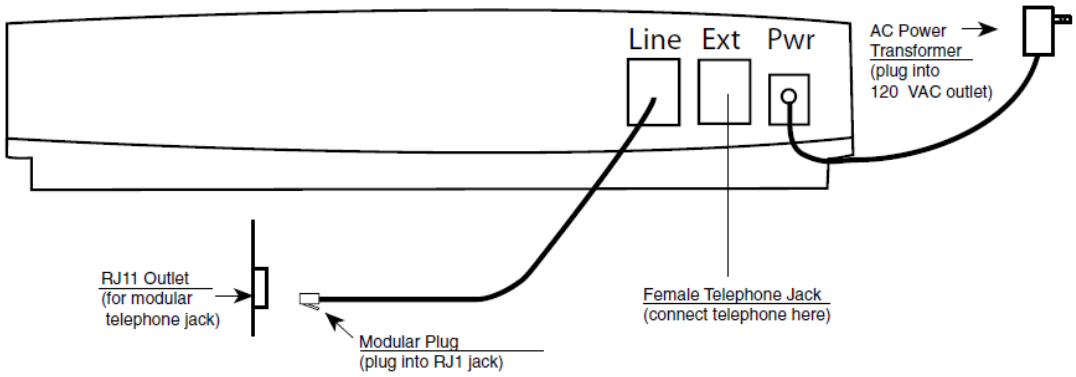
Wiring Diagram

Refer to the following Quick Setup guide to connect your AD-400. More details can be found in the User's Manual.

Power and Phone Line

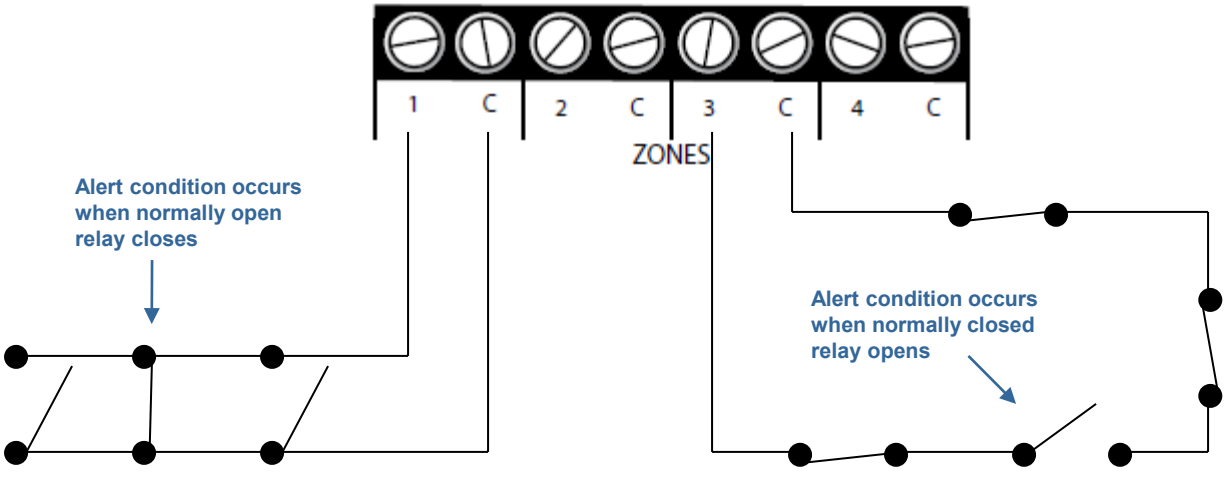
The AD-400 is provided with a DC power transformer that will plug into any standard 120 VAC outlet, and a battery backup (batteries not included) that enables the unit to continue functioning if AC power is removed. The AD-400 uses six C-cell alkaline batteries. Do not use rechargeable batteries.

To install the telephone line, plug one end of the modular cord into the "line" jack on the back of the AD-400 (as shown) and plug the other end into any standard RJ11 phone outlet. Another jack is provided to connect an optional phone extension. The AD-400 will operate with all standard analog telephone lines that accept pulse or tone dialing. Also, it may not be installed on a party line, pay telephone line, or digital telephone system. Certain private telephone systems and public switching equipment may not accept the AD-400 dialing or may generate an unacceptable ring signal. In those cases, a dedicated line may be required.



Input Zone/Relay Wiring

Open the input/output wiring door located above the keypad. The AD-400 can monitor up to 4 zones (represented by the numbered terminal screws. A zone configured as dry contact can be used with any normally open (N.O.) or normally closed (N.C.) relay. "Open" refers to an opened circuit path; if an alarm condition causes the circuit to close, an alert condition occurs. "Closed" refers to a continuous circuit path; if a closed circuit is opened, an alert condition occurs. Refer to the User's Manual to configure the way zones are monitored. The AD-400 may have more than one relay connected to the same input zone, as long as the normal condition for each relay on the same input zone is identical (either all N.O. or all N.C.).



Multiple normally-opened relays wired in parallel (example using Zone 1)

Multiple normally-closed relays wired in series (example using Zone 3)

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